

## REMARKS

Claims 1-20 and 27-31 were presented for examination. Claims 3 and 8 were rejected under Section 112. All of the claims were rejected under Section 103(a) as being obvious in view of WO 02/064250. Claim 1 has been amended to include the limitation of claim 27 that R is a bivalent cycloalkene group. Claim 27 and all of the other claims which cover other embodiments have been canceled.

As stated in the response to the previous office action, the reference discloses a very large number of bidentate diphosphine ligands which are useful in a catalyst for the carbonylation of ethylenically unsaturated compounds. It cannot be disputed that the reference states a clear preference for the ligands listed on pages 9 and 10 of the reference. None of these materials is a diphosphine ligand which has a cycloalkene bridging group which is connected to each phosphorus atom by a  $sp^2$  hybridized carbon atom which is required by the claims as amended. The Applicants assert that the selection of a smaller group of ligands within the broad disclosure of the reference is not obvious in view of the superior results which are achieved using this smaller group of ligands.

The Examiner's attention is directed to the examples, specifically the comparison between Example 8 and Comparative Example D which is shown in Table I on page 21. Example 8 utilizes a ligand within the scope of the present invention, 1,2-PP'bis(9-phosphabicyclo[3.3.1]nonyl)cyclopentene. Comparative Example D utilizes one of the compounds listed in the reference on page 10, 1,2-PP'bis(9-phosphabicyclo[3.3.1]nonyl)cyclohexane. These materials are highly structurally similar. The only difference is that in Example D, the bridging group is not connected to each phosphorus atom by a  $sp^2$  hybridized carbon atom and in Example 8, the bridging group is connected to each phosphorus atom by a  $sp^2$  hybridized carbon atom. It can be seen in the table that the initial reaction rate in Example 8 is almost four times higher than the initial reaction rate in Comparative Example D and that the amount of alkanol product which is produced is greater than 99 percent in Example 8 whereas only 88 percent alkanol product is produced in Comparative Example D.

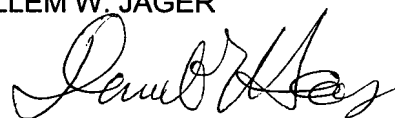
The Applicants assert that the rejection has been overcome. The selection of the smaller group of ligands which have a cycloalkene group in order to achieve these superior results using

such cycloalkene ligands as opposed to the very structurally similar cycloalkane ligands suggested by and listed in the cited reference is nonobvious.

Respectfully submitted,

EIT DRENT, ROELOF VAN GINKEL,  
and WILLEM W. JAGER

By



Attorney, Donald F. Haas  
Registration No. 26,177  
(713) 241-3356

P.O. Box 2463  
Houston, Texas 77252-2463